

Abstract of the disclosure

The disclosure describes building blocks for preparing oligonucleotides carrying non-standard nucleobases that can pair with complementary non-standard nucleobases so as to fit the Watson-Crick geometry, in that the resulting base pair joins a monocyclic six membered ring pairing with a fused bicyclic heterocyclic ring system composed of a five member ring fused with a six membered ring, with the orientation of the heterocycles with respect to each other and with respect to the backbone chain analogous to that found in DNA and RNA, but with a pattern of hydrogen bonds holding the base pair together different from that found in the AT and GC base pairs (a "non-standard base pair").